Technical Progress And Its Aesthetic Interaction In Interior Design

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Abstract

Through the two researchers' briefing on many (manufacturers of smart technologies), it became clear that there is a clear role that contributes to activating the aesthetics of modern technologies according to their design variables. Has this progress achieved an aesthetic interaction in interior design? While the goal of the research study is to reveal the pillars on which technical progress is based, by studying its aesthetic interaction in interior design, while its spatial and temporal limits include the interior spaces represented by (manufacturers of smart technologies) for the period from 2015-2021, while the research community adopted On the intentional selective method, where the intentional samples were determined by 33% of the original research community, while the research tool used was the analysis form that included (3) sub-axes, and the analysis was done on the basis of it, while the validity of the used tool was verified, as the analysis axes form was presented to A group of specialized experts, and then resorted to extracting the stability of the analysis through the adoption of the two researchers to the method of consistency between analysts, and thus the rate of reliability coefficient reached 82%, which is a very good percentage, to represent one of the pillars on which technical progress is based to reach an interior design aesthetically pleasing.

Keywords: progress, technology, interaction, beauty

Introduction

The world has witnessed many developments in the field of modern technologies and interior design, which led to the expansion of ideas in a noticeable way in all aspects of life, as technology leaves a clear impact on human thought in general and architectural thought. Technical progress has become in line with technological development and has had a clear impact on the interior design methodology, especially on the mechanisms of its implementation, through the use of digital technologies at the level of software and hardware, an attempt to enter virtual programs with a digital dimension strongly and clearly to facilitate the perception of the design environment by the designer and user In addition, these technologies have created a whole generation of smart materials, which are characterized by strength and light weight, including modern technical materials that keep pace with this modern trend in architecture and interior design, and through the application of this modern trend, we find that it has made a huge revolution in the field of interior design, through The applications of the newly developed smart materials, which contributed greatly to the response to the user of the internal space, because

this trend was based on the use of technology within an integrated social level according to the concept of the context of responsive technologies.

Research problem and need:

What are the pillars on which technical progress is based? Has this progress achieved an aesthetic interaction in interior design?

The importance of research:

1 - The research study contributes to referring to contemporary technical developments and achievements, especially in the field of interior design.

4- The research study sheds light on the importance of the interior designer's self-determination for each stage of the design process, while clarifying the design meanings associated with technical progress.

Research Objective:

The research study aims to reveal the pillars on which technical progress is based, by studying its aesthetic interaction in interior design

Research Limits:

1- Objective limits: technical progress and its aesthetic interaction in interior design.

2- Spatial limits: manufacturers of smart home technologies in (Seattle, Washington / USA and Beijing / China).

3- Time limits: 2015-2021.

Define the terms:

1- Progress: The word progress (progress, progres) is a word of Latin origin (progressus) derived from the verb progreidi meaning to move forward or to move forward in space or time or both. (Mays, 1999, p. 1)

2- Technology: it is defined as the set of principles or means that help to accomplish something or achieve an end, and it is based today on a precise scientific basis, and the foreign word is of Greek origin, which is (techno), which means art and industry and differs from science in that its goal is work and application (Madkour, The Philosophical Dictionary, 1983, p. 53).

3- Procedural definition: (technical progress)

This is the progress made in the ability of the designer to use modern technologies and benefit from them to reach the goal and achieve it, so that life becomes more luxurious and simpler, which leads to changing the future, and technical progress has a role in a radical and total change in the form and style of life.

4- Interaction: the process of forming a series of interconnected actions between two or more interacting themes. Interaction is a two-way behavior and is a response, relationship and change jointly implemented (Hassan, 2018, p. 14).

5- Beauty: beauty according to Schopenhauer is: a phenomenon of the mind that depends on the distinctive characteristics of the individual who perceives it, remarkable in its completeness and compatibility. and the recipient. (Abdul Hamid, 2001, pp. 42-43)

6- Procedural definition: (aesthetic interaction)

It is that feeling on which the human mind is based through a feeling of satisfaction and enjoyment of the aesthetic answer to design, and this interaction contributes to improving the surrounding reality according to the concept of beauty. It is also an expression of the harmony between the coordinated parts, within precise relationships so that there is no room to add or change anything else.

Technological progress between excitement and suspense and its

relationship to the design of interior spaces:

(The person is affected by the scene and affects it, the aesthetic components of the design environment affect the person in a positive way, and they are components that increase the ability to renew and revitalize mental health, so the person feels comfortable, as his senses contribute to creating this feeling according to its specialization and to a degree in which it is possible to distinguish between feelings of satisfaction towards the visual climate And among the feelings of aversion, as it represents an important social element on the level of social life). (Al-Kubaisi, 2000, p. 27), (it is possible to influence a person psychologically through the total elements and components of the inner space by studying all of their formal transformations, especially through color, lighting, shadow, sound, and others). (Abdul Latif, 1979, p. 27)

It is clear from the above that achieving a balance between these elements according to a sensory perspective may respond to them according to the requirements of the contemporary man and meet his needs and feelings so as to enhance the personality of the interior space, which indicates that the employment of these elements with their modern techniques developed by the designer achieves excitement and suspense in the design work. This is based on the role of visual comprehension on objective factors related to the degree of fluidity and organization of the visual field of the design subject and on subjective factors based on the stimuli received by the eye.

Mastery skill in building interactive design:

We mean the skill of mastery in building interactive design (on interaction and communication, whether direct or indirect, and between the user and the computer, which falls within the direct interaction so that it is within the control and dialogue throughout the work, while the indirect interaction may include only background or sensory processing What, but the important thing is the user's interaction with the tool through the computer to accomplish a specific task or treatment). (Wael, 2008, p. 1-2) It is known that (man does not move only in space, but sees shapes, hears sounds and senses other technical aspects, as the inner space includes the sensory and aesthetic aspects of the elements in his field, and when an element is placed in the field of space, a visual relationship is formed When other elements are placed, several relationships are formed between space and elements, and between the elements themselves. Space is formed by this relationship and by people who perceive it. (Lester, 1984, p. 10) Also, the skill of mastery in building interactive design has been developed through (the development of the design idea in the digital environment is often one of the ideas provided by the means of the dynamic process, and the relationship between technical manipulation by computer, which facilitated the use of new programs and the development of The shape in addition to the ability to choose materials, components and structures for the digital form) (and Lester, 1984, p. 10), then the skill of mastery in building the mutual interactive design between the dimensions of the space structure, which is divided (Hadi, 2018, 86):

1- The physical structure of the interior space: It includes walls, ceilings, floors and furniture units

2- The electronic structure of the inner space: - It includes

7- Physical equipment: wires, equipment and communication units responsible for transmitting information.

8- Electronic programs: a set of laws and programs that complete the process of interaction, movement and receiving orders.

Nominal values and their interaction with the levels of interior design:

Values represent ideals that include deep thoughts and feelings related to people's lives, so Jules Lanio refers to the relationship of value to thought, as he says ((value consists of thought thinking in its own freedom)) meaning that value is only possible when this thought composes the meaning of its freedom in the challenges that It spreads its existence and that the meaning of value in return comes from freedom itself, and this represents the existential trend in the meaning of values philosophically (,) Al-Obaidi, 2013, p. 225)

As (John Dewey) says that value (is everything that has power in directing behavior and this element of orientation based on the idea of value applies to the world, as it applies to everything else, as every science has its steps derived from assessments or evaluations, then value judgments They are provisions of the conditions and results of the things that are done, i.e. the provisions of what should regulate the formation of desires and demands, because what determines the fate of their formation will determine the basic way of personal and social behavior) (Salah Konsowa, 1981, p. 148).

It is clear from the foregoing that the nominal values and their interaction with the levels of interior design depend mainly on the process of satisfying human needs in order to achieve excitement for the recipient, enjoyment and psychological comfort. In establishing various designs according to the multiplicity of their performance in order to adopt them as a goal to provide a new job adopted by the designer for an intellectual position that was put forward to find a design topic that presents expected behaviors to achieve the design goal specified within the levels of interior design

Through this (establishing the interior space according to legal requirements to satisfy some human needs in its broad sense, as a solution that symbolizes a specific intent so as to suggest satisfaction to the recipient), (Kholood, 2008, p. 21), and (the study of smart materials and structures is defined as those elements that sense events The environment, which in turn processes sensory information, and then works on the environment, and indicates that smart technologies have the following characteristics (Hadi, 2015, p. 56): as shown in Scheme (1)

- ❖ Immediacy - respond in real time.
- ❖ Transiency - responds to more than one external stimulus.
- ❖ Self-actuation- Intelligence is internal rather than 'external'.
- ❖ Selectivity - Its response is discrete and predictable.
- ❖ Directness - the local response to a specific "activation" event.
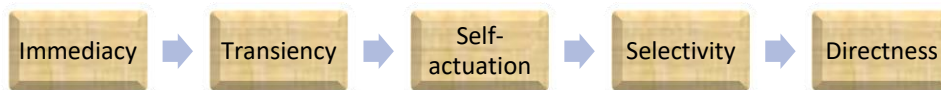
Fig. 1: A diagram showing the legal values and their interaction with the levels of interior design through the response characteristics of smart technologies

Innovative ability and its relationship to contemporary technologies:

The change in design is nothing but an "innovative act, but it is not original, but rather an additive (developed) and may be created under the circumstances of the variables, and it can be a face resulting from the effectiveness of the variables. The effect of endoscopy alone is one of the aspects that would not have occurred without the changes and their direct impact)) (Nassif, 2000, p. 40)

Thus, (the progress made in various technologies and their applications affected all areas of life, and architecture clearly through its impact on the methods of design, construction and operation, which depend on the type of design, methods of financing and appropriate management, with modern technologies, which made it possible to integrate them with different systems in the same building , such as communication systems, lighting and building automation, to give space the ability to centralize control, and accordingly, modern and innovative technologies can be defined as the integrated structural technology used for communication and various control of the building's facilities, including the infrastructure, to provide the owner and occupant with a flexible, effective and comfortable internal environment in different circumstances. (Caba, 2002, p. 35)

In light of the foregoing, it is possible to point out that the birth of the innovation system began since the existence of man on earth in order to adapt nature to achieve his human interests and needs, and at all levels, including social, economic, religious and political, by stimulating the mind with mechanisms of scientific and cognitive thinking, in addition to Simulation of the actual requirements necessary for the permanence of staying on the ground, and translating all this into a design that serves the desired goals

Smart Interior Spaces Standards:

(The most important driving factor for smart spaces is the adequacy of their economic capacity, the optimum utilization of the workforce and the improvement of service levels through the use of the latest technologies in design, given that these technologies opened multiple horizons in the field of interior design, which gave them a new context for place and time, The smart space can also be achieved by designing a spacious interior space that allows communication with the rest of the world, to obtain valuable information from this vast ocean, in order to allow the flexibility of this physical space used when changing the human need in its spaces and based on the following criteria (Wang, 2010) .p2)

1- The comfort standard:

(Comfort is one of the most important words that is easy to say and difficult to define, for example, large windows are important to deliver light and fresh air to the comfort of the space occupants, who in turn need the appropriate light for work, study or other requirements of life, as well as fresh air to activate and stimulate them and thus contribute to increasing their work and creativity The environment and interior design are also linked by a reciprocal relationship, as the environment on the one hand affects the design with its design details, in addition to helping the occupants maintain high levels of focus in their daily work through designs that reflect intelligence resulting from a flexible integrated methodology to coordinate between its elements to raise the level of their daily work. Abdel Fattah, 2000, p. 43)

The American Society (ASHRAE) also referred to this relationship through the level of comfort criterion, as it is the state of mind associated with the physical, emotional and psychological state. The comfortable environment plays an important role in raising the performance of the occupants, which can be seen through: (Wang, 2010 p.72)

❖ Thermal comfort and ventilation
❖ Optical comfort (lighting)
❖ Acoustic comfort and noise control.

It is clear from the above that the provision of comfort standards is through (the standard of thermal and optical comfort, as well as acoustic comfort), by employing them in the interior space so that the design meets the needs of the space occupants in comfort

2- Safety and Security Standard:

With the advent of the era of smart technologies (we find that the human need for security and safety led to harnessing all the energies around him towards building more adequate, flexible and safer buildings and spaces, in the building sector today there is great pressure on developers to build buildings with more and more smart spaces, and perhaps the main motive Behind this demand is the concept of security and protection offered by these high-tech smart spaces to their occupants, in addition to the advantages that these spaces provide to increase security and safety requirements, showing the extent to which these spaces are able to compete with their traditional counterparts, which is one of the most important things that I focused on in The development of

smart spaces, which are integrated security systems to control the exits and entrances to these spaces and their surroundings, and what they do in applying all the requirements of security systems such as regulations for protection against fire, toxic fumes, industrial pollution, earthquakes, natural disasters, etc.) (Rubin, 1998, p.28) and Wang 2010, p.224)), (Therefore, smart spaces today and the security systems in them monitor all periodic changes by relying on a system of cameras installed in certain areas of the building or space so that It helps in interacting with the rest of the components of the different space systems, for example, when a fire breaks out, by relying on the central monitoring system, which in turn indicates the location and location of the fire in relation to that space, and then the automated system controls the air flow in the adaptive system and the movement of elevators with the notification of the local authorities and firefighters of the accident. So that the fire alarm can be issued on the burning floor, while specifying that within all floors in order to remain in an emergency state until the danger ends (Rubin, 1998, p. 28) and Wang2010, p. 224). Fig (2), Fig (3) and Fig (4) illustrate security and safety techniques.
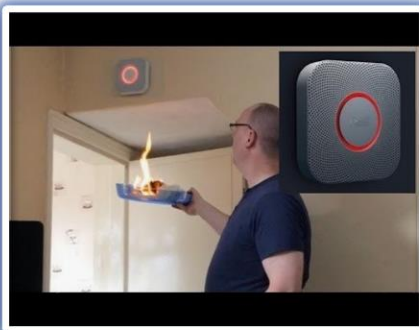
Fig. 4:
https://www.samma3a.

Fig. 3:
https://encrypted-
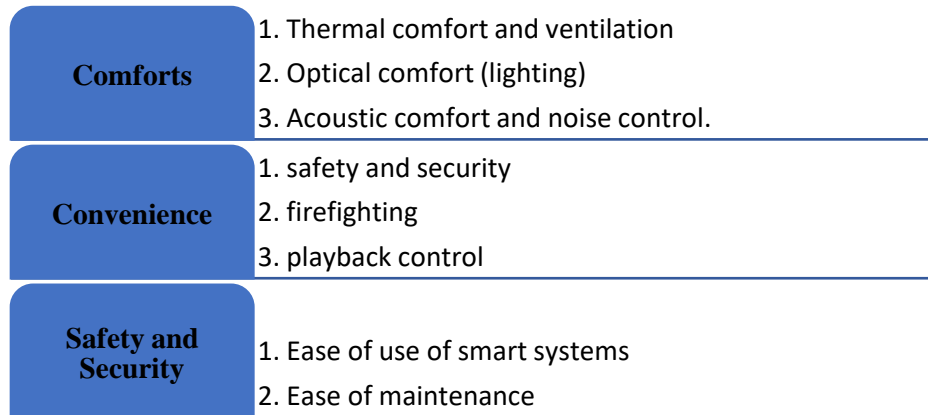
Fig. 2:
https://aawsat.com/sites/def

Fig. 2, 3, 4: Clarifies the standard of security and safety in interior spaces.

3- Convenience Standard:

The design process has a significant impact on societies in multiple ways. It can help occupants work more effectively and may provide them

with a wide range of stimuli to respond to their senses. Close in all aspects of the design process) (Crome, 2004, p.19), so Vitruvius indicated in the first century BC that there are three criteria for designing a space: suitability, durability, and beauty, with which a space can be designed on strong foundations. The concept of convenience in smart spaces as divided between the value of the benefit that emerges through its flexibility,

spatial quality and structural capacity through the integration of systems and their technical and structural performance) (Wang, 2010, p.2) Through the foregoing, the previous topics agree to ensure the availability of three main criteria to provide the highest degrees to make the interior space smart, namely comfort and convenience, security and safety as in the Fig (5)

Comforts	1. Thermal comfort and ventilation 2. Optical comfort (lighting) 3. Acoustic comfort and noise control.
Convenience	1. safety and security 2. firefighting 3. playback control
Safety and Security	1. Ease of use of smart systems 2. Ease of maintenance

Fig. 5: shows the criteria for the smart indoor space.

Indicators of the theoretical framework:

1. The legal values and their interaction with the levels of interior design depend on the satisfaction of human needs in order to achieve the design goal through (exciting the recipient, enjoyment, psychological comfort and familiarity within the interior spaces).

2. The adoption of modern technologies is based largely on expanding the space for innovation by employing modern and smart technologies while finding new ways that simulate the means of technical and technological progress in order to achieve the highest benefit to meet the needs of society. Here, functional need and formal organization are important factors that contribute to the selection of modern materials and manufacturing methods. With the manufacture of new products that keep pace with development, in addition to the management of technologies by mechanical or electronic methods, in order to

increase the energy of internal spaces, and accordingly, smart spaces have shown an integrated solution for all activities.

3. It is possible to provide comfort standards (thermal comfort, optical comfort, as well as acoustic comfort), and use them in the interior space to meet the design needs of the occupants of the space by accessing the central control program for space via the Internet connection, which in turn leads to a space free of complexity and ease Use and provide a comfortable environment that plays an important role in raising the performance of the occupants.

Methodology:

The two researchers relied on the descriptive approach (content analysis) and therefore to reveal (the pillars on which technical progress is based, through its aesthetic interaction in interior design) The research community also included a study of the internal spaces represented by

(manufacturers of smart home technologies), which showed technical diversity within their products for smart devices, and thus the research community can be identified in the following table (1).

Table 1: shows the research community.

Num.	Company's name	state	Creation or creation date
1	Apple, the manufacturer of smart home technologies https://www.apple.com/shop/accessories/all/homekit	United States of America	2001
2	Rubetek is a manufacturer of smart home technologies https://rubetek.com/	Moscow / Russia	2010
3	Xiami smart home technology company https://xiaomi-mi.com/mi-smart-home/	Beijing / China	2010
4	Tp-link is a manufacturer of smart home technologies https://www.tp-link.com/en/	Shenzhen / China	2011
5	Ajax is a company that produces smart home technologies http://www.ajax.systems/	Ukraine / Europe	2011
6	Amazon, the company that produces smart home technologies https://www.amazon.com/smart-	Seattle, Washington/USA	2016

The intentional selective method was adopted for the sample represented by the original research community, which was selected according to the following conditions and reasons: -

1- The elected models were designed in a thoughtful manner to the level of techniques used in the interior and architectural spaces

2- The sample was selected based on the opinions of experts in the field of scientific and professional specialization related to the subject of the research.

3- Adopting diversity in choosing the geographical location of the submitted models.

4- Although there are a number of important companies, they were excluded due to the lack of obtaining information and images, and for this the intentional sample was limited to the number referred to.

Description and analysis of the research sample models:

1- The first model: Amazon company producing smart home technologies - Seattle, Washington / United States of America for the year (2016)

Perhaps one of the essential characteristics of describing a smart home is the role of the interior designer through the design space gradation, to be in turn an important role in the movement sequence and space sequence, while the designer also demonstrated his innovative ability in the process of studying designs for smart home devices through the characteristic of the central space organization. The most important innovative intellectual concepts adopted by the interior designer is design excellence, in addition to expressing a design composition with deep building concepts for the innovative design personality to give meanings and confirm its presence in smart home designs. The general description also includes:

1- Reliance on the employment of smart devices in the inner space, and all these employments contributed to raising the functionality of the inner space

2- Studying the required area for floors and walls in proportion to the area of horizontal and vertical determinants

3- Employing smart technologies in a house located in Style/Washington, where the ceilings were structural with secondary ceilings and others based on bodyboard

4- The internal parameters were marked with light colors

5- Controlling the lighting in the ceiling by sound, as well as the ceilings on the fire alarm

6- Adoption of the walls of the interior space of one level with its reliance on smart curtains that are controlled by sound, in addition to the walls containing lighting that is controlled by sound and sockets
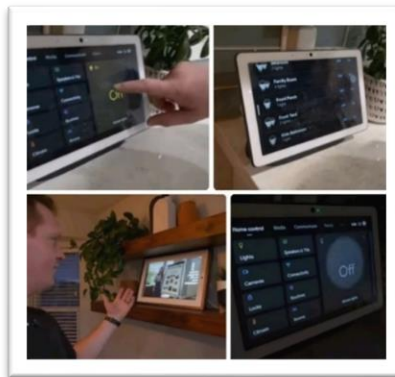
7- The floors were one level with the adoption of ceramic material as a final finishing material in light colors.

8- The interior space included dark and light pieces of furniture with the use of shade plants and a vertical piece of lighting that is also controlled by sound.
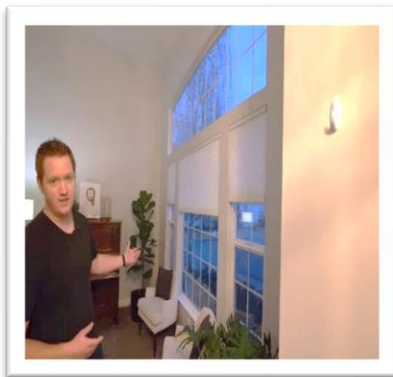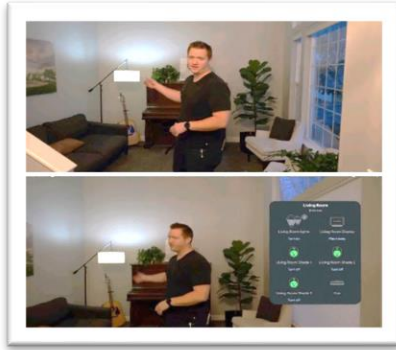

Fig. 6: Sensor for raising and lowering curtains

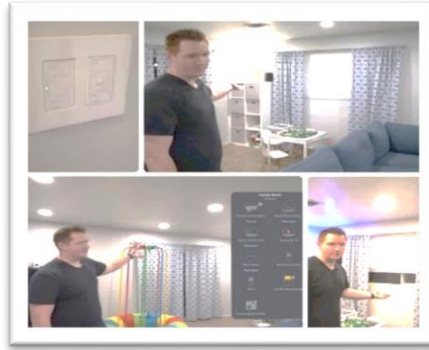https://youtu.be/sJmplWe_cX0

Fig. 7: tablet

https://youtu.be/sJmplWe_cX0

Fig. 8: Lighting control by voice

https://youtu.be/sJmplWe_cX0

Fig. 9: Roller blinds devices

https://youtu.be/sJmplWe_cX0

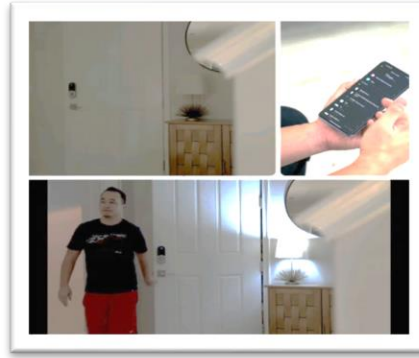**2- The second model:** Xiami smart home technology producer, Beijing / China (2010)

The description of the smart home in all its dimensions has been characterized by the formation of energy-efficient spaces, and the designer, in his design of the interior space, intends to complete the exploitation of all design requirements in a functional and aesthetic manner, as well as achieve the means of comfort through his study of various modern technologies with an innovative path that expresses technological development. and technical. With the multiplicity of forms and types of technologies that make up a smart home, in addition to the designer's ability to employ these technologies in the interior space, achieving communication between its various levels through design pluralism and similarity in design configuration within the levels of the internal determinants of space, while employing them in an innovative way to create a more communicative and interactive interior space with the user, The general description also includes:

1- The diversity of techniques used within the internal determinants; the ceilings were designs with multiple levels

2- Relying on smart lighting units within gypsum board designs

3- The ceilings were distinguished by light colors and appropriate heights

4- The walls, which were of multiple levels and light colors, with wide windows, which contributed to achieving external communication in addition to providing natural lighting.

5- Rely on smart blinds that are controlled remotely and through a daylight sensor

6- Install lighting units and heating and cooling devices that are controlled with modern technologies

7- The floors are based on white ceramic as the final finishing material, with the use of brushes in the middle of the interior space.

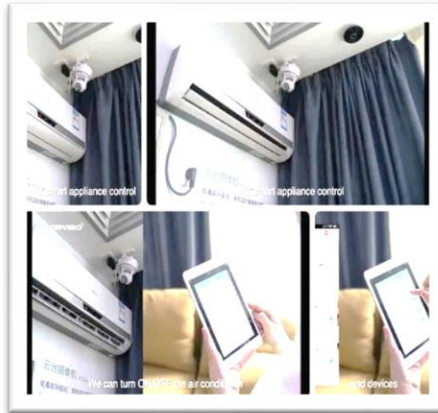**Fig. 10:** Controlling the light and its intensity through the tablet

https://youtu.be/2cLYxX4xJhs

Fig. 11: Light sensor and control by mobile phone

https://youtu.be/p7otYoiCyjs%Dault7

Fig. 12: smart door locks

https://youtu.be/2cLYxX4xJhs

Fig. 13: thermostat and tablet

https://youtu.be/2cLYxX4xJhs

Results

The two researchers reached (the results of the analytical study), which is concerned with the aim of research in revealing the pillars on which technical progress is based, by studying its aesthetic interaction in interior design, which are as follows:

1- The interior designer relied on the study of legal values and their interaction with the levels of interior design for the purpose of satisfying human needs in order to achieve the design goal based on technical progress with aesthetic interaction through the clear verification of the recipient's excitement achieved within the designs of ceilings and walls for the two models, noting that this was not achieved. Within the floor designs of the two models, as well as through the interior designer to study the sensory enjoyment, psychological comfort and familiarity clearly within the designs of the internal determinants of the two models.

2- The study of the interior designer showed the clear emergence of the space of technical innovation by relying on modern technologies to

extract patterns for smart interior spaces through the following:

* Employing modern technologies that are among the necessary requirements in interior design while finding new ways that mimic the means of technical progress, which were clearly achieved within the designs of ceilings and walls for the two models, noting that this was not achieved within the floor designs of the two models.

* The interior designer, through his study, intended to achieve the highest benefit to meet the needs of society by studying the interior designer to manage techniques by mechanical or electronic methods in order to increase the energy of the interior spaces, which was clearly achieved within the designs of the internal determinants of the two models.

3- The designer's study emphasized the provision of comfort standards for technical progress with aesthetic interaction, by relying on the study of the standard (thermal comfort, optical comfort, as well as acoustic comfort), by employing them in the interior space to meet the interior design thus the needs of the occupants of the interior space, as the study of the interior designer showed the adoption of The central control program by connecting to Internet technologies, which in turn leads to the construction of an interior space free of complexity and easy to use, in turn helping to provide a comfortable interior environment in addition to its important role in raising the performance of the occupants of the interior space, which was clearly achieved within the designs of the internal determinants of the two models.

Conclusions:

1- One of the components of the study of legal values and their interaction with the levels of interior design is the satisfaction of human needs as a solution that symbolizes a specific intent so as to suggest satisfaction to the recipient through

stimulating the recipient, enjoyment, psychological comfort and familiarity within the interior spaces. To represent one of the pillars upon which technical progress is based to reach an interior design with an aesthetic interaction.

2- The subjective action of the design content is reflected as an innovative act and a working mechanism that depends on an innovative system, which requires the interior designer to keep pace with development in terms of performance and aesthetics, to form in turn one of the pillars on which technical progress is based to reach an interior design with an aesthetic interaction. Perhaps these modifications and changes Integrated ideas will lead to an innovative design output that is compatible with the surrounding temporal, spatial and aesthetic variables.

3- The reality of the feasibility of studying the interior spaces employed for smart modern technologies depends on new characteristics that are linked to technical progress with aesthetic interaction through the following:

* The interaction of smart spaces and their response to the needs of the occupants, and this depends on the interior designer's study of the criteria (thermal comfort, optical comfort, as well as acoustic comfort), by employing them in the interior spaces.

* Relying on the central control program by connecting to internet technologies and this may be reflected in the functional and aesthetic performance outputs, which in turn leads to an interior space free of complexity and easy to use while providing a comfortable internal environment that plays an important role in raising the performance of the occupants of the interior space. To represent these pillars on which the progress of the aesthetic interaction in smart interior design is based.

Analysis form for the first model / Amazon company producing smart home technologies - Washington, United States of America for the year**(2021)**

T.	Sub-theme titles	Paragraphs of secondary axes	verified			relatively real			unverified		
			roof	walls	floor	roof	walls	floor	roof	walls	floor
1	**Nominal values and their interaction with the levels of interior design**	excitability of the receiver	✓	✓							✓
		sensual enjoyment	✓	✓	✓						
		Psychological comfort	✓	✓	✓						
		affinity	✓	✓	✓						
2	**Modern technologies by expanding the space for technical innovation**	Employing modern technologies	✓	✓							✓
		Mimic the means of technological progress	✓	✓	✓						
		Meet the needs of the community	✓	✓	✓						
		Technology management by mechanical or electronic methods	✓	✓							✓
		Interior design essentials	✓	✓	✓						
3	**Convenience standards of technical progress with aesthetic interaction**	thermal comfort	✓	✓	✓						
		Optical comfort	✓	✓	✓						
		acoustic comfort	✓	✓	✓						
	Adoption of the central control program by connecting to Internet technologies	It leads to an interior space free from complexity and easy to use	✓	✓	✓						
		Provide a comfortable indoor environment	✓	✓	✓						
		Increased performance for indoor space occupants	✓	✓	✓						

Analysis form for the second model / Xiami company producing smart home technologies - Beijing / China for the year**(2021)**

T.	Sub-theme titles	Paragraphs of secondary axes	verified			relatively real			unverified		
			roof	walls	floor	roof	walls	floor	roof	walls	floor

#	Category	Item										
1	Nominal values and their interaction with the levels of interior design	excitability of the receiver	✓	✓								✓
		sensual enjoyment	✓	✓	✓							
		Psychological comfort	✓	✓	✓							
		affinity	✓	✓	✓							
2	Modern technologies by expanding the space for technical innovation	Employing modern technologies	✓	✓								✓
		Mimic the means of technological progress	✓	✓	✓							
		Meet the needs of the community	✓	✓	✓							
		Technology management by mechanical or electronic methods	✓	✓								✓
		Interior design essentials										
3	Convenience standards of technical progress with aesthetic interaction	thermal comfort	✓	✓	✓							
		Optical comfort	✓	✓	✓							
		acoustic comfort	✓	✓	✓							
	Adoption of the central control program by connecting to Internet technologies	It leads to an interior space free from complexity and easy to use	✓	✓	✓							
		Provide a comfortable indoor environment	✓	✓	✓							
		Increased performance for indoor space occupants	✓	✓	✓							

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